

**REMARKS/ARGUMENTS**

Claims 1 and 4-10 are pending in the present application. By this reply, claims 1 and 8 are amended. Claim 1 and 8 are independent claims. No new matter is added. Support for the claims can be found throughout the specification, including the original specification, and the drawings. Reconsideration in view of the above amendments and the following remarks is respectfully requested.

**35 U.S.C. § 102 Rejections**

Claims 1, 3-4 and 6-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Liu et al. (USPN 5,371,440), hereinafter Liu, and claims 1-2 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 98/11655, hereinafter ref. 655, respectively. The rejections are respectfully traversed.

Embodiments of the present invention relate to a low-output microwave lighting system for enhancing a stability of a system by removing a flicker phenomenon generated at a low output and a flicker removing method. As shown in Figures 4 and 5, an embodiment of a low-output microwave lighting system according to the claimed invention can include a rectifier, a power factor compensator, an inverter circuit unit, a magnetron driving unit and a magnetron. The rectifier rectifies general AC power inputted through a power source unit and outputs a DC voltage. The power factor compensator compensates a power factor of the DC voltage inputted through the rectifier. The inverter circuit unit receives the power factor-compensated DC voltage and outputs an AC voltage through frequency varying. The magnetron driving unit

transforms the AC voltage inputted from the inverter circuit unit and generates a magnetron filament current and a high level voltage. The magnetron is lighted by the high level voltage and current outputted from the magnetron driving unit. Moreover, the power factor compensator can include a PFC controller for outputting controlling power factor compensation using a rectified signal inputted through the rectifier and a PFC circuit unit for receiving the control signal and compensating a power factor of the DC voltage inputted through the rectifier.

As shown in Figures 4 and 5, one flicker removing method according to the claimed invention can include rectifying general AC power and outputting a DC voltage; increasing the DC voltage through a PFC circuit for improvement of a power factor to reduce a ripple; receiving the DC voltage, varying a frequency of the DC voltage through a half-bridge, and outputting an AC voltage; and receiving the AC voltage and driving a magnetron, wherein increasing step can include converting the rectified DC voltage into the PFC output voltage; distributing the PFC output voltage to two resistances and outputting a feedback voltage; receiving the feedback voltage and outputting a control signal for adjusting the power factor of the PFC output voltage; and receiving the control signal for adjusting the power factor of the PFC output voltage and performing ON/OFF.

Therefore, embodiments of a system and method according to the invention are capable of enhancing a stability of a system by removing a flicker phenomenon generated at a low output by using a power factor compensation circuit and an inverter-purpose transformer.

The Office Action asserts that Liu discloses a lighting system comprising a rectifier for rectifying general AC power inputted through a power source unit and outputting a DC voltage; a power factor compensator for compensating a power factor of the DC voltage inputted through the rectifier, wherein the power factor compensator comprises a power factor correction (PFC) controller for controlling PFC circuit; and an inverter unit, wherein the inverter unit includes a half bridge inverter, MOSFET transistors having diodes across between drain and source terminals respectively and an inverter driver, for receiving the power factor-compensated DC voltage and outputting an AC voltage through frequency varying at a high frequency, 1-2 MHz.

However, Applicants respectfully submit that the lighting system disclosed by Liu does not teach or suggest at least recited features of “a magnetron driving unit for transforming the AC voltage inputted from the inverter circuit unit and generating a magnetron filament current and a high level voltage; and a magnetron lighted by the high level voltage and current outputted from the magnetron driving unit”, and combinations thereof from claim 1. Further, Applicants respectfully submit that Liu does not teach or suggest any modifications to its disclosure that would result in features of a magnetron driving unit and a magnetron and combinations thereof as recited in claim 1.

Thus, the lighting system disclosed by Liu is not capable of enhancing a stability of a system by removing a flicker phenomenon generated at a low output by using a power factor

compensation circuit and an inverter-purpose transformer, and a flicker removing method using the same, as in the claimed invention.

Accordingly, the present invention as claimed in independent claim 1 is not anticipated by the Liu reference. Claims 4 and 6-7 dependent from claim 1 and define patentable subject matter for at least that reason as well as their additionally recited features. Claim 3 is canceled without prejudice or disclaimer. Withdrawal of the rejection of claims 1, 3-4 and 6-7 under §102 is respectfully requested.

The Office Action asserts that Ref. 655 discloses a method and device for powering a magnetron comprising a rectifier for rectifying general AC power inputted through a power source unit and outputting a DC voltage; a power factor compensator for reducing a ripple frequency from a line voltage via smooth capacitor as well as compensating/increasing a power factor of the DC voltage inputted through the rectifier; a half bridge inverter unit for receiving the power factor-compensated DC voltage and outputting an AC voltage through frequency varying at a high frequency about 100 KHz; and a magnetron driver for driving magnetron with a sinusoidal high frequency component of high frequency band has been added to a square wave low frequency generated from the half-bridge inverter unit.

However, Applicants respectfully submit that the method and device disclosed by Ref. 655 does not teach or suggest at least recited features of “wherein the power factor compensator comprises a PFC controller for outputting a controlling a power factor compensation by a rectified signal inputted through the rectifier; and a PFC circuit unit for receiving the control

signal and compensating a power factor of the DC voltage inputted through the rectifier” and “wherein increasing step comprises converting the rectified DC voltage into the PFC output voltage; distributing the PFC output voltage to two resistances and outputting a feedback voltage; receiving the feedback voltage and outputting a control signal for adjusting the power factor of the PFC output voltage; and receiving the control signal for adjusting the power factor of the PFC output voltage and performing ON/OFF”, and combinations thereof as recited in claim 8. Further, Applicants respectfully submit that Ref. 665 does not teach or suggest any modifications to its disclosure that would result in features of the increasing step and combinations thereof as recited in claim 8.

Thus, Applicants respectfully submit the method and device disclosed by Ref. 655 is not capable of enhancing a stability of a system by removing a flicker phenomenon generated at a low output by using a power factor compensation circuit and an inverter-purpose transformer, as in the claimed invention.

Accordingly, the present invention as claimed in independent claim 8 is not anticipated by the Ref. 655 reference. Applicants respectfully submit that claim 1 is not anticipated by Ref. 655 for at least reasons similar to claim 8. Claims 9-10 dependent from claim 8 and define patentable subject matter for at least that reason as well as their additionally recited features. Claim 2 is canceled without prejudice or disclaimer. Withdrawal of the rejection of claims 1-2 and 8-10 under §102 is respectfully requested.

35 U.S.C. § 103 Rejection

Claim 5 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Liu in view of Kim (USPN 6,222,746), hereinafter Kim. The rejection is respectfully traversed.

Applicants respectfully submit that claim 5, which depends from claim 1, is allowable for at least the reasons discussed above with respect to independent claim 1. That is, Kim fails to teach or suggest at least recited features of “a magnetron driving unit for transforming the AC voltage inputted from the inverter circuit unit and generating a magnetron filament current and a high level voltage; and a magnetron lighted by the high level voltage and current outputted from the magnetron driving unit”, lacking from Liu and as recited in claim 1.

Therefore, the present invention as claimed in amended independent claim 1 could not have been realized from Liu taken in combination with Kim, because combining the references as cited by the Examiner would not provide at least recited features of “magnetron driving unit” and “magnetron” as in the claimed invention, and thus the combined teachings of these references are not capable of performing the claimed invention’s functions described above.

Accordingly, for at least the foregoing reasons, the invention as recited in amended independent claim 1 is patentable over Liu and Kim. Further, Applicants respectfully submit that dependent claim 5 is patentable over Liu and Kim because of its dependency on claim 1 or its additionally recited features. Withdrawal of the rejection of claim 5 is respectfully requested.

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**CONCLUSION**

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited.

If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, **Carl R. Wesolowski**, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,  
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